



Research Paper

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Evaluation of different orange flesh sweet potato [*Ipomoea batatas* (L.) Lam] varieties with respect to growth, yield and quality under Dharwad condition

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ABSTRACT : Initial evaluation trial on orange fleshed genotypes was conducted during 2009-010 and 2010-11 at Regional Horticulture Research and Extension Center (RHREC), Dharwad (Karnataka) for Evaluation of various orange fleshed sweet potato [*Ipomoea batatas* (L.) Lam] varieties under Dharwad condition. Pooled data of 2 years revealed that, Kamal Sundari had recorded significantly longer vine length of 155.87 cm, harvest index (62.45%), tuber yield per hectare (27.78 t ha⁻¹). Where as the lower weevil infestation was noticed in S-61 (10.03%).

KEY WORDS : Sweet potato, *Ipomoea batatas*, Orange flesh and β -carotene

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Sweet potato [*Ipomoea batatas* (L.) Lam] is one of the important crops of tropical, subtropical and temperate regions of the world. It is the seventh most important food crop in developing countries and produces more calories than rice, wheat and maize per hectare per day. The crop has high photosynthetic efficiency and chief source of energy. Among the Asian countries, China ranks first in area and production and accounts 80 per cent for the worlds production, while the rest of the contribution is from Japan, Vietnam, Uganda, India, Indonesia and Korea. India is the largest sweet potato producer in South Asia and occupies sixth position in the world with an area of 0.124 million hectare, annual production of 1.12 million tonnes and the productivity of 9.01t ha⁻¹ (CMIE, 2010), which is more than half of the world average. In India, Orissa, Bihar and Uttar Pradesh account for 39.5 per cent area and 37 per cent production (CMIE, 2010). This crop is principal source of starch and contains 15-28 per cent starch and 3-6 per cent sugar (Harvat *et al.*, 1991).

Deficiency in vitamin A is one of the most prevalent problems, particularly in Sub-Saharan Africa and South Asia. The functional consequences of vitamin A deficiency are dramatic: "severe vitamin A deficiency has very high fatality

rates (60%) but even sub-clinical deficiency is associated with a 23 per cent increase in preschooler mortality in areas with endemic vitamin A deficiency" (McGuire, 1993). Consequently, a massive international effort has been underway since the early 1990s to combat vitamin A deficiency. Orange-fleshed sweet potatoes have emerged as one of the most promising plant sources of β -carotene (Hagenimana and Low, 2000). A 100-g serving (about half a cupful) of boiled roots can supply about 50 per cent of the daily vitamin A requirement of a young child. The current varieties of orange-fleshed sweet potatoes contain 20–30 times more β -carotene than does Golden Rice (Ye *et al.*, 2000). Hence, effort has been made to evaluate suitable genotype for Dharwad region.

RESEARCH METHODS

A field experiment was conducted at Regional Horticulture Research and Extension Center (RHREC), Dharwad (Karnataka) during 2010-11. The soil was shallow red embedded with small sand and gravels with pH 5.9-6.3. The experiment was laid out with randomized blocked design with three replications and 12 orange fleshed genotypes *viz.*, Kamal Sundari, S61, S-1281, S-594, S-1156, 362/7, Konkan Ashwini, CIP-SWA, SV-98, 440038,